

CLAIMS:

1 1. A universal broadcast system providing full digital services
2 via a uni-directional communications link over a plurality of channels, each
3 of said channels providing one of VOD or digital broadcast , said universal
4 broadcast system comprising:

5 first digital broadcast circuitry for a first channel of said universal
6 broadcast system, said first channel being a digital broadcast channel, said
7 first digital broadcast circuitry including:

8 a plurality of first digital broadcast data sources each providing
9 data intended for broadcast in a digital broadcast mode over said first
10 channel;

11 a plurality of digital data encoders each coupled to a
12 corresponding unique one of said plurality of data sources, each of
13 said digital data encoders operable to encode received data into a
14 digital program stream format;

15 a first data merger device coupled to said plurality of digital
16 data encoders, said data merger device operable to merge data
17 received in a digital program stream format into first merged digital
18 stream data;

19 a first channel server coupled to said data merger device, said
20 first channel server operable to generate a first modulated
21 intermediate frequency signal from said first merged digital stream
22 data;

23 a first up converter device coupled to said first channel server,
24 said first up converter device operable to convert said first modulated
25 intermediate frequency signal into a first radio frequency signal; and
26 a combiner amplifier coupled to said first channel circuitry, said
27 combiner amplifier operable to amplify, condition and combine received
28 radio frequency signals such as said first radio frequency signal, said output
29 of said combiner amplifier suitable to deliver said plurality of channels
30 across a uni-directional communications medium.

1 2. A universal broadcast system as recited in claim 1, wherein
2 at least one of said plurality of first digital broadcast sources is an analog
3 video source.

1 3. A universal broadcast system as recited in claim 2, wherein
2 said analog video source is an analog video camera.

1 4. A universal broadcast system as recited in claim 2, wherein
2 said analog video source is an analog video cassette recorder.

1 5. A universal broadcast system as recited in claim 2, wherein
2 said analog video source is television program source.

1 6. A universal broadcast system as recited in claim 1, wherein
2 at least one of said plurality of first digital broadcast sources is an digital
3 video source.

1 7. A universal broadcast system as recited in claim 6, wherein
2 said digital video source is an MPEG data file.

1 8. A universal broadcast system as recited in claim 6, wherein
2 said digital video source is an MPEG transport stream.

1 9. A universal broadcast system as recited in claim 1, wherein
2 at least one of said plurality of digital data encoders is an MPEG encoder.

1 10. A universal broadcast system as recited in claim 1 wherein
2 said first data merger device and said first channel server are fabricated as a
3 single device.

1 11. A universal broadcast system as recited in claim 1 wherein
2 said first digital broadcast circuitry is one of a plurality of digital broadcast
3 circuitry for a portion of said plurality of channels of said universal
4 broadcasts system.

1 12. A universal broadcast system as recited in claim 1, said
2 universal broadcast system further comprising:

3 a central controlling server;
4 a central storage device storing data intended for on-demand data
5 provision;
6 first data-on-demand circuitry for a second channel of said universal
7 broadcast system, said second channel being a data-on-demand channel, said
8 first data-on-demand circuitry including:
9 a second channel server having a second channel server CPU,
10 local memory, a modulator, and a network interface, said second
11 channel server operable to generate a second modulated intermediate
12 frequency signal from digital data stored in said local memory; and
13 a second channel up converter device coupled to said second
14 channel server, said second up converter device operable to convert
15 said second modulated intermediate frequency signal into a second
16 radio frequency signal provided to said combiner amplifier.

1 13. A universal broadcast system as recited in claim 12, wherein
2 said central controlling server is operable to select said second channel and
3 calculate a delivery matrix for transmitting data files stored on said central
4 storage device on said second channel.

1 14. A universal broadcast system as recited in claim 13, wherein
2 said central control server is further operable to provide offline addition,
3 deletion, and update of data file information at said second controlling
4 server.

1 15. A universal broadcast system as recited in claim 12 wherein
2 said central control server manages files stored on said central storage
3 device.

1 16. A universal broadcast system providing full digital services
2 via a uni-directional communications link over a plurality of channels, each
3 of said channels providing one of VOD or digital broadcast , said universal
4 broadcast system comprising:

5 first digital broadcast circuitry for a first channel of said universal
6 broadcast system, said first channel being a digital broadcast channel, said
7 first digital broadcast circuitry including:

8 a plurality of first digital broadcast data sources each providing
9 data intended for broadcast in a digital broadcast mode over said first
10 channel;

11 a plurality of digital data encoders each coupled to a
12 corresponding unique one of said plurality of data sources, each of
13 said digital data encoders operable to encode received data into a
14 digital program stream format;

15 a first data merger device coupled to said plurality of digital
16 data encoders, said data merger device operable to merge data
17 received in a digital program stream format into first merged digital
18 stream data;

19 a first channel server coupled to said data merger device, said
20 first channel server operable to generate a first modulated
21 intermediate frequency signal from said first merged digital stream
22 data;

23 a first up converter device coupled to said first channel server,
24 said first up converter device operable to convert said first modulated
25 intermediate frequency signal into a first radio frequency signal; and

26 a combiner amplifier coupled to said first channel circuitry, said
27 combiner amplifier operable to amplify, condition and combine received
28 radio frequency signals such as said first radio frequency signal, said output
29 of said combiner amplifier suitable to deliver said plurality of channels
30 across a uni-directional communications medium.

31 a central controlling server;

32 a central storage device storing data intended for on-demand data
33 provision;

34 first data-on-demand circuitry for a second channel of said universal
35 broadcast system, said second channel being a data-on-demand channel, said
36 first data-on-demand circuitry including:

37 a second channel server having a second channel server CPU,
38 local memory, a modulator, and a network interface, said first channel
39 server operable to generate a second modulated intermediate
40 frequency signal from digital data stored in said local memory; and

41 a second channel up converter device coupled to said second channel
42 server, said second up converter device operable to convert said second

43 modulated intermediate frequency signal into a second radio frequency
44 signal provided to said combiner amplifier.

1 17. A universal broadcast system as recited in claim 16 wherein
2 said first data merger device and said first channel server are fabricated as a
3 single device.

1 18. A universal broadcast system as recited in claim 18 wherein
2 said first digital broadcast circuitry is one of a plurality of digital broadcast
3 circuitry for a portion of said plurality of channels of said universal
4 broadcasts system.

1 19. A universal broadcast system as recited in claim 16, wherein
2 said central controlling server is operable to select said second channel and
3 calculate a delivery matrix for transmitting data files stored on said central
4 storage device on said second channel.

1 20. A universal broadcast system as recited in claim 19, wherein
2 said central control server is further operable to provide offline addition,
3 deletion, and update of data file information at said second controlling
4 server.

1 21. A universal broadcast system as recited in claim 16 wherein
2 said central control server manages files stored on said central storage
3 device.

1 22. A universal broadcast system providing full digital services
2 via a uni-directional communications link over a plurality of channels, each
3 of said channels providing one of VOD or digital broadcast, said universal
4 broadcast system comprising:

5 a plurality of digital broadcast circuitry one each for a corresponding
6 portion of said plurality of channels of said universal broadcast system each
7 being a digital broadcast channel, each of said digital broadcast circuitry
8 operable to generate digital broadcast data over a corresponding channel;

9 a central controlling server;

10 a central storage device storing data intended for on-demand data
11 provision;

12 a plurality of data-on-demand circuitry for a corresponding portion of
13 said plurality of channels of said universal broadcast system each being a
14 data-on-demand channel, each of said data-on-demand circuitry operable to
15 generate on-demand data over a corresponding channel, each data-on-
16 demand circuitry including a corresponding channel server having a channel
17 server CPU, local memory, a modulator, and a network interface, wherein
18 said central controlling server is operable to select a particular data-on-
19 demand channel and calculate a delivery matrix for transmitting data files
20 stored on said central storage device on said data-on-demand channel,

21 provide offline addition, deletion, and update of data file information at said
22 second controlling server.

1 23. A computer implemented universal data broadcast method
2 comprising the acts of:

3 providing a first channel server suitable for the transmission of digital
4 broadcast data via a first channel;

5 providing a second channel server suitable for the transmission of
6 data-on-demand via a second channel;

7 prior to data broadcast, preparing a first channel server for the
8 transmission of data-on-demand information;

9 transmitting an electronic program guide including information
10 indicating that said first channel contains digital broadcast data, said
11 electronic program guide further indicating that said second channel contains
12 on-demand data; and

13 combining and transmitting data from said first channel and said
14 second channel.